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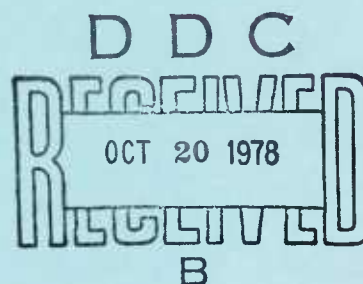


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THE RELEASE AND OBLIGATION
OF ARMY PROCUREMENT FUNDS

SEPTEMBER 1978



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ARMY PROCUREMENT RESEARCH OFFICE

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THE RELEASE AND OBLIGATION
OF ARMY PROCUREMENT FUNDS

by

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September 1978

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EXECUTIVE SUMMARY

A. BACKGROUND: In recent years the Army has experienced both overobligation and underobligation of procurement funds. The overobligations prompted a general tightening up of the system with more checks and balances. This, together with a large increase in Foreign Military Sales and other factors, led to a decline in the amount of procurement funds obligated. This decline, in turn, caused delays in program execution and loss of budget credibility.

B. OBJECTIVES: The objectives of this study are to (i) review the release and obligation process for procurement funds, (ii) identify problem areas, (iii) develop recommended changes.

C. RESEARCH METHOD: The research method was to (i) describe the present process with information and documentation flow, (ii) describe the organizational functions, identifying constraints and conflicting organizational goals, if found, (iii) quantify the process, where possible, using historical data with regression techniques, (iv) obtain functional perspectives from comptroller offices, procurement offices, requiring offices and others by means of personal interviews.

D. CONCLUSIONS: The Army has made significant improvements in obligating procurement funds, but several areas can be further improved. Some of these areas are: recycling of funds, forecasting of obligations, standardization and implementation of MIS, and others.

E. RECOMMENDATIONS: (i) Support efforts to standardize and improve the Management Information Systems APARS and CCSS, (ii) improve recycling of funds, (iii) improve forecasting of obligations by requiring offices and adjust the aggregated forecast downward at higher headquarters, (iv) standardize the definition of the term "obligation rate" and use a corresponding performance indicator, (v) change AR 37-21 to allow recording as an obligation of those funds which are committed for Economic Price Adjustment clauses on awarded contracts.

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CHAPTER I

INTRODUCTION

A. BACKGROUND.

In recent years the Army has experienced both overobligation and underobligation of procurement funds. As explained more fully below, a Congressional change in the appropriation structure made the budget execution process much more complex, starting in FY 1972. After an overobligation occurred in FY 1974, many new procedures were developed by the Army to prevent further overobligations. Since then, the opposite situation, namely underobligation, has become a problem. The Army, like other Federal agencies, requests its procurement appropriations for a specific fiscal year, based on a planned requirement. When the funds are appropriated but not eventually obligated, the Army's budget estimating credibility is reduced. Delay in obligations can also unbalance carefully planned programs in which the planning for subsequent activity proceeds from initial spending assumptions that later prove invalid. Finally, if procurement funds are not obligated within three years, the funds expire.

Federal agencies thus have two conflicting goals. The first and most important one is the requirement not to obligate more than has been appropriated. This goal is a legal requirement with sanctions for its violation. The second goal, a management one, is the desire to expedite obligations in fulfillment of valid Army requirements. Related to this second goal is a need to be aware of the status of the programs both to accurately forecast the extent of

shortfalls in obligations, and to take corrective actions. Since there have been many studies, blue ribbon committees, and management information systems which address the first goal, the present study addresses only the second.

B. STUDY OBJECTIVES.

The objectives of this study are to (i) review the release and obligation process for procurement funds in the Army, (ii) identify problem areas, (iii) develop recommended changes to the process.

C. SCOPE.

The study covers the obligation of direct Army procurement funds from their release from the Department of Defense to Headquarters, Department of the Army, down through US Army Materiel Development and Readiness Command (DARCOM) and to the Major Subordinate Commands (MSC's) to the recording of the obligation. The obligation process at higher levels has been recorded in other studies, and is only summarized here, but the process at lower levels, since it is not treated in other studies, is recorded in more detail.

The study takes as an assumption the legal requirement not to overobligate. The study would consider changes to any current procedures or regulations, including reporting requirements and checks and balances.

The researchers recognized at the outset that budget execution is in part a political process, in that the power to withhold, release, or reprogram a limited amount of funds has a very direct impact on specific organizations, individuals, and programs, this impact being both inside the Army and in the private sector. This implies a continuing negotiation between higher levels

and lower levels. For purposes of analysis, however, budget execution is treated here like an information network; i.e., as a sequence of interdependent tasks, each with process times, leading finally to a recorded obligation.

D. METHODOLOGY.

The approach planned to accomplish the study objectives is to (i) describe the present release and obligation process together with the information and documentation flow, identifying problems, gaps or redundancies, (ii) describe the organizational functions, identifying constraints such as Army Regulations and conflicting organizational goals, (iii) quantify the process where possible, using historical release and obligation data, identifying process times and attempting to develop a methodology to forecast the end-of-year status of obligations, (iv) interview selected individuals in requiring offices, contracting offices, budget execution offices and elsewhere to obtain their viewpoints.

E. REPORT ORGANIZATION.

Chapter II briefly reviews the background of the release and obligation process and describes the present budget execution system. Chapter III records the viewpoints of interviewees and discusses the study team's research findings. Chapter IV summarizes the conclusions and recommendations.

CHAPTER II

ARMY RELEASE AND OBLIGATION PROCESS

A. INTRODUCTION.

This section will describe the historical context, the extent of underobligations, and how the problem is seen by Congress and the media. Before fiscal year 1972 the Army operated under a no-year procurement appropriation called "Procurement of Equipment and Missiles, Army (PEMA). Under this concept there was no fiscal year limitation on the use of funds in this account. There was also no cutoff period during which total obligations were to be matched with total funding authority. Funds were available until used or transferred out of the account. Starting in FY 1972 these funds were assigned a three-year life, after which they were unavailable for obligation. At the same time, the PEMA account was broken into five separate accounts (aircraft, missiles, weapons and tracked vehicles, ammunition and other). The effect of these changes was to increase the number of procurement accounts to be managed from one to fifteen (three separate year groups times five procurement accounts).

In the next three years several things happened. As the first of the three-year funds approached the cutoff period, the customer order program almost tripled in size and complexity. Then in December of 1974 a violation of the Anti-Deficiency Act (Section 3679 Revised Statutes, as amended, 31 U.S.C. 665) was discovered at CERCOM (formerly ECOM) (40.2M) by the Army Audit Agency (AAA).

In January 1975, AAA recommended that all Major Subordinate Commands (MSC's) be ordered to reconcile their accounts. Other violations were discovered, and in November 1975, the Army had to issue stop work orders on about 1,200 contracts. In April 1976 the Assistant Secretary of the Army for Financial Management testified before the Senate to answer questions and ask for money. In June 1976 a law was passed letting the Army transfer funds between appropriations, and allowing the contractors to be paid.

The initial overobligation in 1974 prompted many studies, some of which are discussed below, and a general tightening up of the system with more checks and balances in the budget execution process. Also, there was a renewed emphasis on implementing some of the management information systems that were being designed. At about the same time there was a major reorganization of Army Budget, DARCOM and the subordinate commands. The caution due to the initial violations, together with the new automated procedures and reorganizations created an organizational turbulence. This turbulence, and the continued increase in Foreign Military Sales (FMS), with the resulting complexity in reporting requirements, may be, in part, responsible for the slower obligation of funds.

More recently, Congress has focused attention on the underobligations; i.e., the amounts appropriated, but not obligated, especially at the end of the first year. Table 1 shows the extent of unobligated balances in DOD. Procurement balances especially, are becoming larger. Other data shows that the Army is similar to the other DOD components in this area. Figure 1 shows the trend for the Army procurement appropriations for Fiscal Years 1972 through 1977 and Table 2 shows a detailed breakout for FY 1977.

TABLE 1

DOD/MAP UNOBLIGATED BALANCES EXCLUDING FMS, END OF FISCAL YEAR,
1972-78 (\$ MILLIONS)

	<u>6/30/72</u>	<u>6/30/73</u>	<u>6/30/74</u>	<u>6/30/75</u>	<u>6/30/76</u>	<u>9/30/76</u>	ESTIMATE <u>9/30/77</u>	ESTIMATE <u>9/30/78</u>
MILITARY PERSONNEL	1	1	--	--	157	--	--	--
RETIRED PAY	--	--	--	--	26	--	--	--
O&M	66	104	35	23	573	153	--	--
PROCUREMENT	6,870	7,716	8,837	8,948	12,093	11,041	11,775	14,153
RD&E	519	315	361	331	623	666	385	436
MILITARY CONSTRUCTION	1,527	1,412	1,692	1,440	1,750	1,482	1,557	1,315
FAMILY HOUSING	329	449	521	489	477	282	206	81
CIVIL DEFENSE	4	4	5	2	8	--	--	--
SPECIAL FOREIGN CURRENCY	21	9	5	3	3	2	2	1
INDUSTRIAL FUNDS	1,439	1,640	1,566	1,283	1,752	2,238	2,223	2,690
STOCK FUNDS	152	54	17	--	--	--	--	--
OTHER REVOLVING AND MANAGEMENT FUNDS	23	27	51	18	20	18	17	
TRUST FUNDS	<u>36</u>	<u>46</u>	<u>29</u>	<u>40</u>	<u>56</u>	<u>64</u>	<u>93</u>	<u>101</u>
TOTAL MILITARY FUNCTIONS	10,984	11,776	13,119	12,577	17,536	15,947	16,258	18,793
MAP	<u>2</u>	<u>9</u>	<u>5</u>	<u>12</u>	<u>271</u>	<u>111</u>	<u>12</u>	<u>9</u>
TOTAL UNOBLIGATED BALANCES	10,987	11,784	13,124	12,589	17,808	16,058	16,271	18,803

SOURCE: Budget Hearings for FY 1978, Part 1, p. 98.

FIGURE 1

FIRST YEAR OBLIGATIONS
AS A PERCENT OF TOTAL PROGRAM

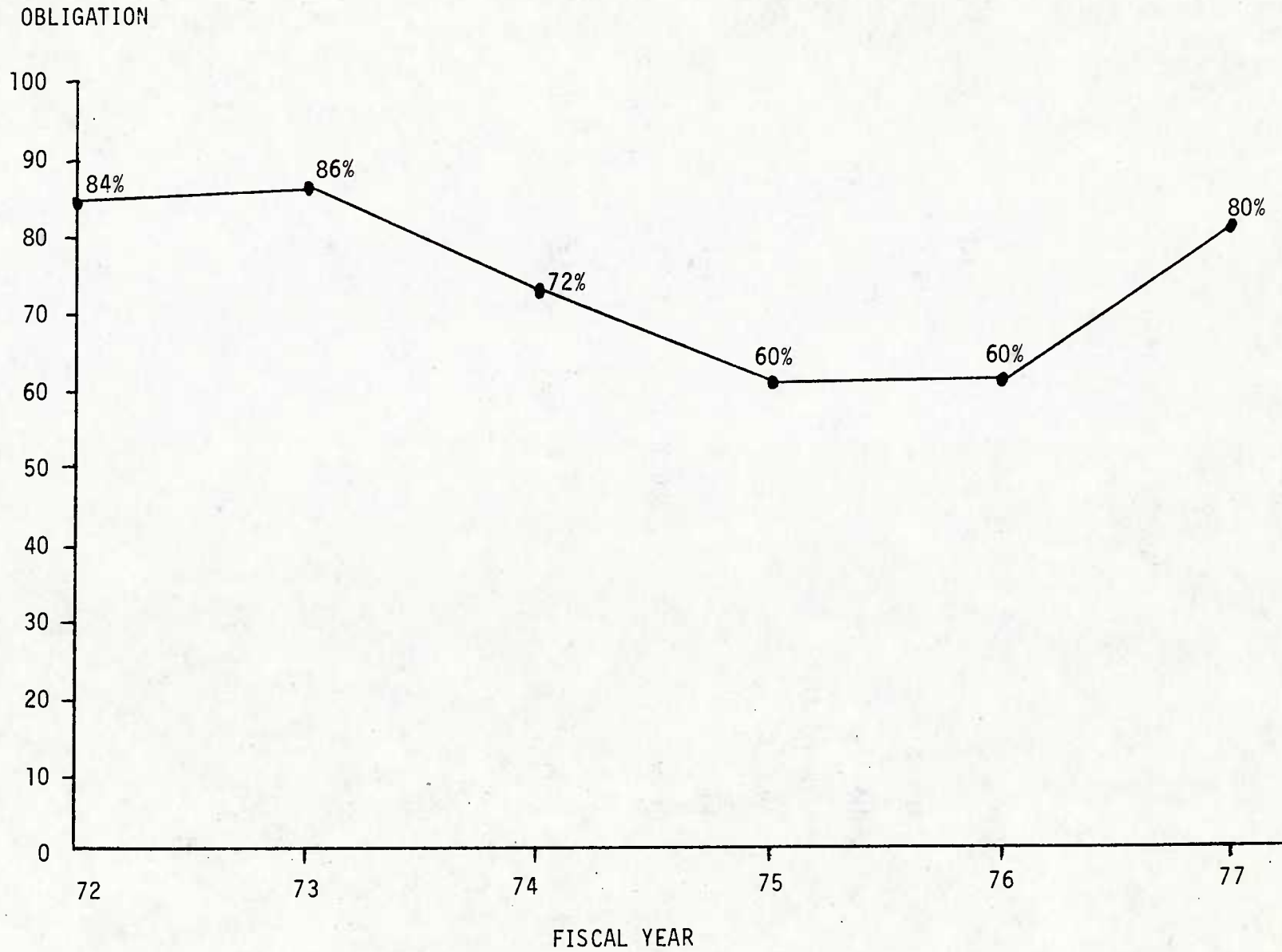


TABLE 2
 PROCUREMENT TITLE FIRST YEAR OBLIGATIONS
 COMPARED TO TOTAL PROGRAM (FY 77)
 (In Millions)

	<u>Approved Program</u>	<u>Obligated</u>	<u>%</u>
Aircraft	541.9	435.7	80
Missile	497.4	438.5	88
Weapon Tracked			
Vehicle	1,117.6	929.1	83
Ammo	902.9	722.6	80
Other	<u>1,366.6</u>	<u>924.6</u>	<u>68</u>
TOTAL	4,426.4	3,450.5	80

The subject of "unobligated balances" often appears in Congressional budget hearings and magazine articles. One House Budget Committee task force criticized the "shoddy estimating and accounting practices" in DOD, particularly unobligated balances which "obscure DOD's real needs" and hinder deliberations.¹ The Navy Secretary said that it was personally embarrassing to him to have to explain the almost \$2 billion shortfall in obligations for DOD in FY 77.² US News and World Report³ said that almost all Federal agencies "goofed": DOD \$2.3 billion; HUD \$1.9 billion; Labor, \$1.6 billion; EPA, \$.9 billion; reflecting poor estimates. "From now on," says US News, look for "a Government-wide drive for more truth in budgeting." While these comments shed more heat than light on the debate, they illustrate the loss of credibility that can result from shortfalls, especially when incorrectly estimated.

B. RECENT STUDIES.

Recent studies have been made within DOD of the obligation process. The main studies are the Report on Controls in Army Procurement Appropriations by the Army Study Group on Control of Investment Appropriations, 31 May 1976, the Survey of FY 1976 Procurement Programs with First-Year Obligation Shortfalls, by Mssrs. Cyr and Hanzlik, and MAJ Dudley, OASD(I&L), 15 April 1977

¹ Federal Contracts Report, No. 699, 9/26/77, p.2.

² Government Contracts Service, No. 22-77, November 30, 1977, p. A-1.

³ US News and World Report, 11/7/77, p. 16.

and the Evaluation of the Army Procurement Appropriation-Management Accounting and Reporting System (APARS), by Ernst & Ernst, July 1977. A brief review of these reports will illustrate some of the current developments in the area.

The Army's Report on Controls was undertaken in response to the over-obligations that had occurred, and attempted to improve the accounting controls in order to prevent further violations. Thus, in 1976 the emphasis was still on avoiding overobligations. The report describes in great detail both the budget formulation process, and the flow of funds from Congress down to DARCOM. Some of the problems identified and corrective actions taken are:

1. There was a lack of clear responsibility at Headquarters, Department of the Army, between the Comptroller of the Army (COA) and the Deputy Chief of Staff for Research, Development and Acquisition (DCSRDA). The COA has been reorganized to strengthen its budget execution capability, regulations have been changed to clarify responsibilities, and DARCOM regulations are being revised to establish similar relationships.

2. Two management information systems, the Procurement of Equipment and Missiles, Army System (PEMARS) and a subsystem, the AMC Logistics Program Hardcore Automated (ALPHA), which were to contain both program line item information and fiscal information were not fully implemented. The PEMARS portion was initiated in 1965, but the Commodity Commands still have their own unique versions. Phase two, which called for implementation of ALPHA, was cancelled by DARCOM in 1974, although commands are still attempting to meet the control and reporting requirements. Efforts are ongoing to implement

these systems, now renamed the Army Procurement Accounting and Reporting System (APARS) and the Commodity Command Standard System (CCSS). The Ernst & Ernst study of 1977, described below, contains a detailed implementation plan with milestones. New management reports, including status of funds are just beginning to become available from these systems.

3. The unlinking of program authority and funding authority led to underfunded programs. The corrections were to release only programs that could be fully funded, and to decentralize reprogramming authority.

Other recommendations were made in the areas of cash control, customer order control, pricing control, internal audit and review, and personnel qualifications and training. In summary, the 1976 Report on Controls was a major study which described the then current system and initiated many changes in the obligation process.

The Survey of FY 1976 Procurement Programs with First-Year Obligation Shortfalls, April 1977, was the only quantitative study discovered, and it directly addressed underobligations. A sampling of programs which were behind schedule was analyzed by a DOD task force. Since the APRO study collected similar information, the specific reasons found in the Survey will not be discussed here, but several findings and recommendations are worth noting. The Survey concluded that ALPHA was delaying the procurement process by as much as four to five weeks (although no supporting data was provided). The Navy version of APARS, called PARS, was found not to be working well and had many errors. The Survey revealed a lack of a standard DOD method of measuring

obligation status versus goals (APRO in its visits to Navy and Air Force discovered the same lack). Several recommendations of the Survey would change the amount recorded as obligated (e.g., include Economic Price Adjustment amounts and the full amount of letter contracts). The APRO study discusses what is currently recorded in a later section. Note that this recommendation would change the way the score is kept, but leave the underlying process unchanged.

Another recommendation was to allow the Program Manager to decide whether or not to compete the follow-on procurement after a full scale development contract. According to the Survey, the present requirement to compete takes time, causes additional costs and prevents Design-to-Cost programs. This recommendation would indeed allow faster obligations, but also would violate sound management principles stated in the ASPR, such as the preference for maximum competition. Whether or not the additional costs for tooling are offset by the downward market pressure from competition is an open question now being investigated by APRO in another study.⁴ This recommendation is like many that can be made which will increase the obligation rate by reducing controls or restrictions. It is necessary to analyze each case, however, to determine if the result is better or worse. A high obligation rate is only one of several, sometimes competing, goals.

⁴APRO Project 709, The Impact of Competing Previously Sole Source Procurements, Lovett, Norton, Herington, January 1978 (Draft).

Another recommendation was to release funds automatically to the procurement agency, instead of having the agency re-justify the need. The report said, "the project goes up with complete justification; therefore, it (the project) should not have to be re-justified in order to receive the already budgeted funds." While this is a simplification of the obligation process, it is also a transfer of authority from higher levels to lower levels. It is not an easy question exactly which level should have what authority for each of the some one-half million actions awarded annually, but the automatic release of funds is probably too much decentralization. An alternative suggested to the present study team is that the request for the release be earlier and better planned.

Another recommendation of the Survey was to re-emphasize the Procurement Planning Request. All commands told the APRO that they were already doing this as much as possible, but continued emphasis seems desirable.

The Ernst & Ernst Evaluation of July 1977 offered several recommendations relevant to this study, even though the main emphasis was toward improving and implementing APARS. The Ernst & Ernst revision of APARS would have the Army replace the present 1369, 1442 and 307 Reports with fewer, but allegedly better, reports. The volume of data would be reduced and several exception reports would be created. One of these, the Execution Rate Exception Report, would show to DA, DARCOM and the MSC management those items which are committed to an extent less than 50% of available program in the first two years of a program's life and less than 100% of program in the third year. This would

alert management to the need to accelerate execution or to reprogram uncommitted programs. Another new report, the Unobligated Balances Report, would relate directly to the subject of this study, and would allow management attention to be focused directly on behind-schedule programs.

Ernst & Ernst found that APARS contains some significant deficiencies as an accounting and management information system, but that an entirely new concept was not needed. The main deficiency was said to be lack of standardization in data presentation among DA, DARCOM, and the MSC's. The study recommended development of a more comprehensive system concept. Otherwise, the study says, "fragmented systems will continue to be developed and installed, with duplicate data bases and redundant reporting of conflicting data remaining as a significant problem area to the Army." For future consideration they recommended a real-time distributed data base concept, the use of tele-processing and mini-computers. These recommendations are mentioned here to illustrate the kinds of efforts that seem promising, but the present study did not attempt to approve or disapprove specific Ernst & Ernst recommendations.

C. SLOW RELEASE RATE AS A CAUSE.

This section explores the possibility that funds are not obligated expeditiously because of slow releases from DOD. The release process will be reviewed briefly and then a quantitative analysis of historical release and obligation data will be discussed.

The DOD releases funds to HQ DA based on an apportionment hearing at which the representatives from DCSRDA, DARCOM, the Project Manager's Office (PMO) and others defend their programs. If OSD is satisfied, a release memorandum is sent from OSD to DCSRDA. DCSRDA records the release and prepares a DA Form 10 for each budget line item. The Forms 10 are then forwarded to COA which checks and records the amounts, and can add or delete funds. The funding, as changed, is transmitted to DARCOM by DA Form 1323.

The Army presently cannot make contract awards until the contracting office has the funds. One possible solution would be to change ASPR 1-318 which prevents awards "subject to funding" for procurement contracts. Another area would be to reemphasize procurement planning including planning Procurement Work Directives (PWD). Both of these actions would expedite the process even if funds continue to be released at the present rate.

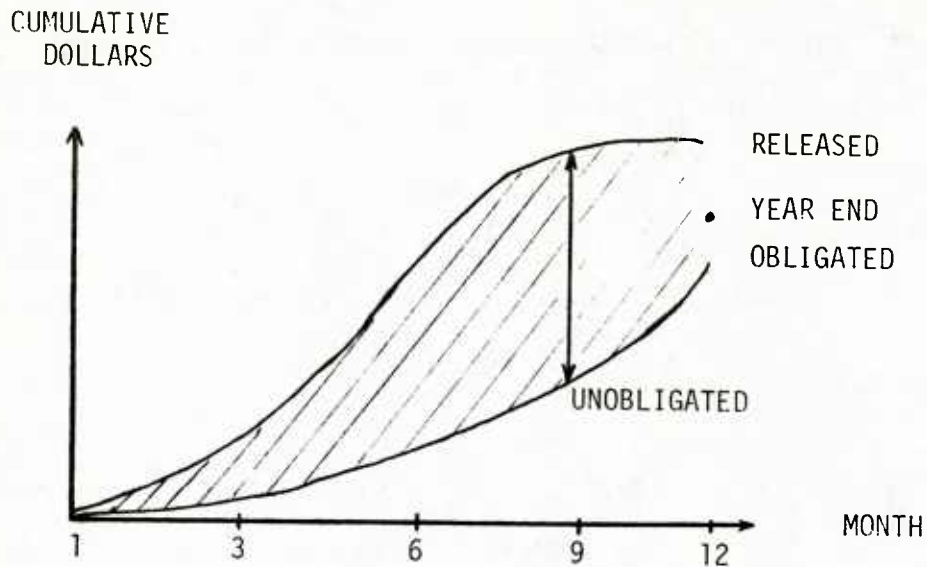
Another possibility is to expedite the release of procurement funds, under the assumption that slow releases may be a partial cause of under-obligations. While the release of procurement funds must necessarily precede the obligation of these funds, there is conceptually a less direct link between earlier releases and a higher rate of obligation. In order to demonstrate this relationship, and quantify it where possible, APRO made a statistical analysis of the monthly releases and obligations for each of five Major Subordinate Commands for Fiscal Years 1972 through 1976.

The first part of the analysis was descriptive, and consisted of a detailed inspection of computer-generated scatter diagrams of the data to determine the best types of curves to describe the process. The second part of the analysis was based on multiple regression techniques and attempted to quantify the relationship between earlier releases and higher obligation rates.

The data were first tabulated for each MSC and each year, keeping Department of Army funds distinct from customer funds. For each twelve month period, data was tabulated for the twelve releases (monthly and cumulative), the obligations (monthly and cumulative) and the differences (releases less obligations, monthly and cumulative). The data were plotted by computer to reveal any trends. From these plots several conclusions were drawn. The monthly data show an irregular pattern, not readily amenable to statistical analysis. The cumulative data did show definite patterns as follows.

The release of funds graphs were usually concave up during the first half of the fiscal year (increasing at an increasing rate). During the last half of the fiscal year they were usually concave down (increasing at a decreasing rate). There was usually a large one-time increase in month five, six or seven. At year's end the curve tended to be flat, or it could even turn downward. Figure 2 shows a typical pattern for the release of funds, together with a typical obligation pattern.

FIGURE 2
CUMULATIVE RELEASES AND OBLIGATIONS



The cumulative unobligated balances plots (releases less obligations) did not conform to any one pattern as Figure 2 might wrongly suggest. Some plots were upward-sloping for a whole year, while others were downward sloping. Many, however, were mound shaped, as shown by the hatched area in Figure 2.

The next step in the descriptive analysis was to fit several curves to the cumulative data (both releases and obligations) to discover which curve type best represented the data. The data seemed best to fit two possibilities, either a curve with a gradually increasing slope (represented by the curve $y = ax^b$), or a straight line which is upward-sloping and has a discontinuity or jump, at the right end (represented by $y = a+bx$, for all points except

the end, and Y_1 for the end point). Data was reviewed covering the last five days of FY 77 in order to analyze a microscopic view of the end of the year process. The data, in Table 3, showed a much larger amount in the last day or two for all procurement accounts, and thus supported the discontinuity description.

TABLE 3
PROCUREMENT OBLIGATIONS FOR FIVE DAYS IN FY 77
(In Millions of Dollars)

	<u>9/26</u>	<u>9/27</u>	<u>9/28</u>	<u>9/29</u>	<u>9/30</u>	<u>Total</u>	<u>Due to Lapse</u>
Aircraft	1.8	6.5	2.1	11.1	42.2	63.7	2.0
Missile	14.1	7.3	13.1	3.0	28.1	65.6	---
Weapons	14.5	6.7	24.3	52.3	91.6	189.4	6.3
Ammo	24.1	33.4	38.4	109.2	133.5	338.6	20.9
Other	14.4	19.1	24.1	23.3	70.4	151.3	3.6
Total	68.9	73.0	102.0	198.9	365.8	808.6	32.8

Source: Fact Sheet prepared for Mr. Preston, House Appropriations Committee, dated 25 Nov 77, by MAJ Dennis, OSD (Comptroller).

It is not known whether or not other months show at the same pattern. A footnote on the table stated that "it is standard procedure near the end of each fiscal year to exert special emphasis to record all outstanding,

valid, unrecorded obligations incurred during that particular fiscal year; i.e., clean up the unrecorded valid obligation documents in float." This implies that the amounts in the last two days appear large only because this is when obligations are recorded. The other possibility is that the funds are, in fact, obligated in much greater amounts at the end of the fiscal year. If this possibility is true, then a discontinuity exists in the process, and a regression-based approach is not suitable.

It should be noted that the President does not see the problem in terms of prompt recording of obligations already made, as the Army states. In his 14 June 1977 Memorandum For the Heads of Executive Departments and Agencies. Subject: Control of Year-End Buying, he says that year-end buying is generally, "an attempt to use up funds that would otherwise lapse because the availability of unobligated funds is greater than is necessary to carry out approved programs." In this memo he directs the services to see that obligations for the fourth quarter do not exceed those of the third quarter, except where justified. As Table 3 shows, however, only 4% of the procurement funds obligated at year-end would have lapsed if not obligated. Under the new guidance, there might have to be a justification or a carryover of a large portion (the excess over the third quarter) of the funds that would have been obligated in the fourth quarter, to the first quarter of the following year. This would have the undesirable effect of increasing the unobligated balances at year-end. An alternative interpretation was stated in the Vice Chief of Staff Memorandum of 5 July 1977, same subject, in which he states that there is no intent "to change the pattern of obligation plans already established, as it is assumed that these plans have taken into

account seasonal variations and any anticipated fluctuations by functional area." Pertinent to this section is the conclusion that the amount of the unobligated balance depends on decisions made, rather than on any process which is predictable in the statistical sense.

Next, an attempt was made to quantify the relationship between earlier releases and a higher obligation rate. The speed with which funds are released can be quantified by calculating the percentage of the total year's release which has been released by the end of each month. Since percentages are always scaled from 0 to 100, the procedure in effect normalizes for both the effects of unusually large or small total yearly procurements (in dollar terms) and for the gradual effects of inflation. In practical terms, if funds are released earlier, the cumulative percentages are higher. Other variables describing the manner of releases were the average month of release, the skewness (which directly measures lateness) and others. The following independent variables were calculated for each command and for each year:

\bar{X}	The weighted average month of release
SD	Standard deviation of release data
SK	Skewness
K	Kurtosis (or pointedness)
YR	Year (1, 2, 3, 4, 5)
P6	Percentage released by month 6
P7	Percentage released by month 7

P8	Percentage released by month 8
P9	Percentage released by month 9
P10	Percentage released by month 10
P11	Percentage released by month 11

A standard multiple regression approach was used to quantify the relationship between each of the independent variables above (taken singly and in combination), and the variable of interest, the end of year obligation rate.

The results of the regression analysis can be stated as follows. No independent variable, or combination of variables is strongly related to the end of year obligation rate. Thus, it seems that earlier releases, measured as described above, do not result in higher obligation rates. The equation giving the best fit had a low index of determination (r^2) of 31%, which can be interpreted as follows. The average performance, for all commands and for all years, was an obligation of 84% of the funds released. Of the individual variation above and below this figure experienced by each MSC, the equation can explain 31%. While the index of determination is low, the so called "t-statistic" for the selected independent variables shows that they have a statistically significant influence. The variables (P7 and P10) have t-statistics of 3.8 and -1.8 respectively, and were significant at the 99% and 90% confidence levels. Two limitations of the equation should be recorded. First, the two variables P7 and P10 were moderately (.64) correlated with each other. Second, the average magnitude of the prediction error was 7%. Finally, the best equation was:

$$\text{Achievement} = .734 + .535 (P7) - .366 (P10)$$

Conclusions can be drawn as follows. The relationship between releases and obligations probably exists, because the F-test for the multiple regression above is significant at 99%, but the relationship must be characterized as weak because the index of determination, r^2 , is only 31%.

The analysis above was done for the five years and six commands available (i.e., for 30 data points). In addition, the figures for all commands were added to give five yearly type data points. Another approach used was to add all years into six command type data points. Neither of the two aggregated approaches yielded significant results.

D. SYSTEM DESCRIPTION.

1. Introduction. The document flow for Direct Army funds and program has been the subject of many studies and reports; however, most of these emphasize the planning and justification process. One example of a detailed flowchart showing the execution process is found in the May 1976 Report On Controls in Army Procurement Appropriations, but that flowchart lacks detail below the DARCOM level.

At the beginning of this study it was planned to track a sample of funding documents from their receipt at the MSC Comptroller's office to the recording of the obligation in the Finance and Accounting Office. It was hoped that actual samples would indicate problem areas and help in more accurate forecasting by permitting the display of average times to complete various actions and time elapsing between actions.

Data was discovered from such a study that had recently been completed. The sample program directive from DARCOM, however, resulted in 25 separate Procurement Work Directives (PWD's), containing 72 amendments, and it covered a period from September 1974 to November 1976. Furthermore, according to the study authors, the tracking of the first PWD took more than three days, and the tracking of the other PWD's, including amendments, was not carried out due to time limitations. Data was available elsewhere for the times between actions (i.e., inter-office transit times), but it was unrealistically short. APRO discovered that the time to complete the actions (i.e., processing times, including idle time) was not available and would be very difficult to collect. In view of the above difficulties, the study team concluded that a qualitative approach was more feasible than the originally planned quantitative one. The following section describes the results of tracing the document flow and interviewing operating personnel in the various functional areas.

2. Flowchart. It is not the intent of this section to trace the entire process from Congress to the contracting office, since previous studies have done this. However, since these studies have concentrated on the process from Congress to HQDA, we will detail the process from HQDA to the contracting office. It must be emphasized that each functional process step (denoted by an inverted trapezoid in Figure 3) may entail several ancillary actions, and may involve several offices within that functional area. While each MSC uses slightly different internal forms, it is still possible to portray a generalized flowchart at the functional level. Thus, the "requiring office"

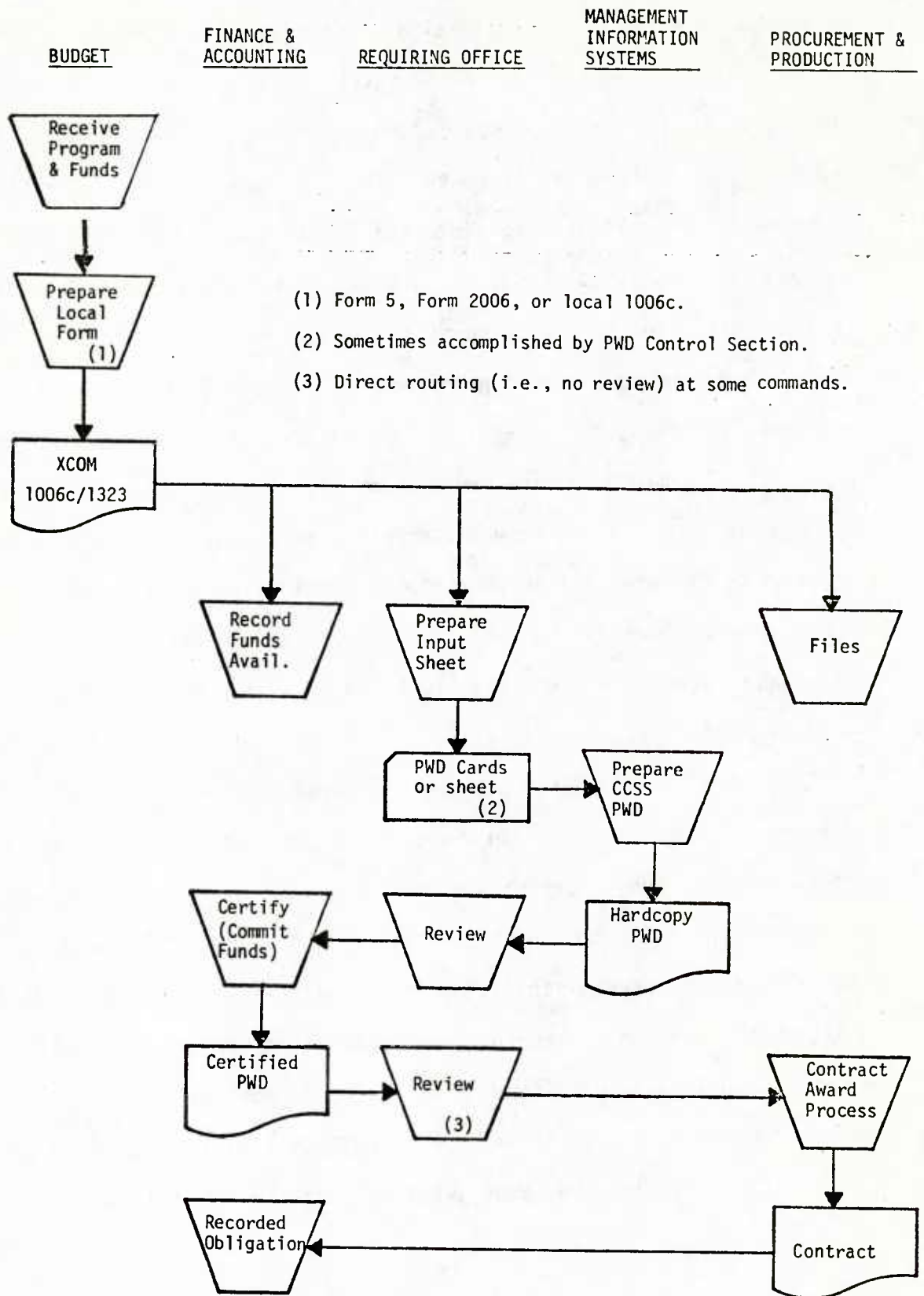
in Figure 3 can represent a Project Manager, an Item Manager or a Directorate for Materiel Management.

DCSRDA issues program authority to DARCOM on their Form 10 and provides COA a copy on which to base an issue of funds to DARCOM on a DA Form 1323, Program and Funding Authorization Document. DARCOM issues program authority on their Form 1006, and funds to accomplish this program on a DA Form 1323.

The Program Directive/Change Request, Form 1006c/DA Form 1323 from DARCOM is received in the Budget Office of the MSC Comptroller, where it is converted to a local format as shown in Figure 3. Depending on which MSC is involved, this local format is called a 1006c, 2006c, or Form 5. The local 1006c (or other format) is forwarded to Finance & Accounting (F&A). The Accounting Policy Branch records the funds as available. At this time the F&A office enters the appropriate data into APARS.

Based upon their own copies of local 1006, the requiring office creates an input sheet for the automated generation of a Procurement Work Directive (PWD). The input formats are reviewed, the accounting classification is added, and the data is forwarded to the Directorate for Management Information Systems (DMIS). The automated PWD's are separated by funding account in a central control office and then are forwarded to the requiring office for review. A copy of the PWD is forwarded to F&A for certification of fund availability. The certification is recorded as a commitment and a copy of the document is sent through the requiring office to the procurement office as authority to award a contract for the item identified on the PWD. Upon award of the contract, the distribution of contracts includes a copy to F&A

FIGURE 3
OBLIGATION OF FUNDS



where the recording of an obligation is processed. Since the command and the Army are evaluated based on the recording of the obligation in the F&A office, it is clear that prompt recording of contract awards is essential, especially at the end of the month. The next two sections describe commitments and obligations, since the operational definitions help define the budget execution process, and also since the amount committed or obligated is often different from the amount on the contract.

3. Commitments. Before procurement funds can be obligated they must be committed (AR 37-21, 1-2a(1)). A commitment is an administrative reservation of funds, based on firm procurement directives, orders, requisitions, or requests, which authorizes the creation of an obligation without further recourse to the official responsible for administrative control of funds. The phrase "without further recourse" serves to prevent tentative commitments. The amount recorded as committed is based on a cost estimate from the requiring activity.

There are three special cases where commitments will differ from the corresponding obligations. In the case of contingent liabilities for price increases remaining under outstanding contracts, only the target amount can be recorded as obligated, but the contingent liability is committed. In the case of contingent liabilities for quantity increases, the increased obligation occurs only when increased quantities are ordered, but the contingent liability is committed in advance. In both of these cases, the amount committed is not the maximum or ceiling liability but rather a conservative estimate, based on judgement and experience. The third special

case covers potential termination charges on multi-year procurement contracts containing the special termination clause (ASPR 7-108.3). These costs are not committed in advance, but in the event of termination the charges are recorded as obligations.

Some of the above contingencies may materialize while others may not. For this reason, and also to facilitate recordkeeping, commitment records may treat all contingent liabilities under the same allotment as a single commitment item. This aggregate amount of funds committed against an allotment, but not yet obligated, called commitments outstanding, provides flexibility for contingencies at the allotment level.

The main flexibility is provided through reserves and the ability to reprogram. Program reserves within the Army's Total Obligational Authority are established at HQDA (AR 37-120, 4-3, b(6)). HQ, DARCOM provides for an unapplied program reserve for direct Army reprogramming actions. At the agency level, unapplied program reserves also exist, but are to be used only for program increases which cannot be accomplished by a reprogramming decrease within the line item received for execution. Reprogramming authority varies at different levels, but it can never be used to permit the addition of quantities, the expansion of approved scopes of work, or the addition of a new item to prior year programs.

In order to make excess funds available to other programs, agencies must recycle unneeded funds. Agencies must immediately classify all direct Army resources which cannot be (1) forecasted for obligation, or (2) classified

as authorized carryover, as excess to the program line. They must transfer the funds to the Unapplied Program Reserve and report the change (AR 37-120, 4-3, 6(11)). A delay in recycling funds can increase the shortfall in obligations.

One alleged problem is that requiring offices neglect to identify excess funds, leaving them committed but not obligated. Two possible reasons can be hypothesized for this. First, the funds might later prove to be needed; i.e., not excess, and if they were recycled it might later be difficult or impossible to get them back. Second, the requiring office must initiate the recycling process, which takes time and manpower, and other tasks have a higher payoff. The recycling problem impacts two areas. First, since the obligation forecast plans are not revised downward, the aggregated plan at HQDA is overoptimistic, leading to loss of credibility. Second, the excess funds are unavailable to other Army programs, and the unobligated balance at the end of the year is unnecessarily large. Since recycling of funds is such an important topic, it will be discussed more fully in Chapter III, Functional Perspectives.

4. Obligations. A distinction must be made between an obligation (which can only be made by a Contracting Officer), and the recording of the obligation (made in a Comptroller office). Obligations are amounts of orders placed, contracts awarded, services rendered, or other legally binding acts made by Federal agencies during a given period which will require outlay during the same or some future period (AR 37-21, Section 2-3a). An obligation then, is a legal duty to pay. The recording of this legal obligation occurs in

a Finance and Accounting Office upon receipt of the paperwork from the contracting office. The study team checked to see if delays in the recording process caused the appearance of an underobligation, but discovered that obligations were recorded promptly.

In order for an obligation to be valid, several criteria have been established by law and by decisions of the Comptroller General. The main tests are bona fide need, availability of funds, and definite contractual terms.

The bona fide test states that the supplies and services contracted for are intended to serve a bona fide need of the fiscal year in which the need arises, or to replace stock used in that year.

The availability of funds test includes both time and subject matter restrictions. If funds are not obligated during the period for which they are available (three years for procurement), they expire. However, obligated used unexpended balances from contracts of a specific fiscal year may be used to pay obligations resulting from other contracts of that same fiscal year. Subject matter restrictions require the Army to obligate funds for the purpose for which they were made available, although some reprogramming is possible.

The definite terms test is a concept from contract law. A contract containing indefinite terms may be either void or voidable. Thus, a contract in which the amount of the Government's obligation is not definite at the time of entering into the contract may not serve to establish an obligation. Except in the case of Firm Fixed-Price Contracts, which in FY 76 and FY 77 accounted for a little less than half of the dollars awarded, the Government does not know the exact amount at the time of contract award. So for types

of contracts other than Firm-Fixed-Price, clauses are used which make both the contract and the obligation valid (e.g., minimum quantities, maximum dollars). The amount of the obligation is still unknown at contract award, but AR 37-21, Section 2-8 gives guidance as follows:

For fixed-price contracts with escalation, price redetermination, or incentive provisions, the target price is recorded as the obligation.

For cost reimbursement and time and material contracts (including cost, cost sharing, cost-plus-fixed-fee, cost-plus-incentive-fee, cost-plus-award-fee, time and materials, and labor hour contracts), the estimated costs are recorded as the obligation. If a cost reimbursement or time and materials contract has a clause providing for an adjustment of the contractor's fixed fee, based upon negotiation; this adjustment may not be recorded as obligated until after both the Government and the contractor agree.

Indefinite delivery contracts can provide for a firm fixed price, price escalation, or price redetermination. The target price is the amount recorded (except for the firm fixed-price contract), but the timing of the recording depends on other factors, as follows. If the quantity is definite, obligations are recorded upon issuance (or acceptance, in some cases) of the order. If the quantity is indefinite (including charge accounts and blanket purchase agreements), the amount to cover the minimum quantity is recorded upon contract award. Additional funds are recorded as

necessary, based on the government's receipt of the material.

Letter contracts and letters of intent are recorded in the maximum liability, but this amount is adjusted later, based on the definitive contract. Obligation is recorded for liability under pending litigation in an amount estimated to cover the result from litigation.

A contract termination is an event which makes it especially hard to obligate funds as planned. The amount recorded as obligated is immediately adjusted, but there may not be time available to award a new contract if one is needed. In instances of default, the initial procurement administrative lead time, contractor slippage, several notices to the contractor, default, administrative determinations of the estimated amount of liability, and finally, the time required for new procurement, may extend beyond the authorized obligation period.

The study team reviewed some of the laws and regulations for budget execution procedures, including Navy and Air Force regulations, to see if the Army was placing any unnecessary restrictions on itself by its interpretation of the guidance from higher levels. Some of this guidance is discussed here. Section 1311 of the Supplemental Appropriation Act of 1955 (31 U.S.C. 200) specifies rules for recording obligations. This act is implemented by Department of Defense Directive 7220.9 "Guidance for Accounting and Reporting for Appropriations and Related Programs and Budgets" which specifies the use of the corresponding DOD Handbook 7220.9H. Section 221 of this handbook is implemented in the Army by AR 37-21, "Establishing and Recording of Commitments and Obligations," in the Air Force by AFR 170-8, "Prerequisites for

Recording Obligations and Certifying Related Reports, and in the Navy by the Navy Comptroller Manual, NAVSO P-1000-2-254, Volume 7, Chapter 3, "Budget Execution". Another important law is the "Anti Deficiency Act", or Revised Statutes 3679, as amended (31 U.S.C. 665), which provides penalties for authorizing or creating any obligation in excess of funds available. A review of this guidance showed that the three services are almost identical with respect to their implementation of the guidance for budget execution, including their definitions of an obligation, when it occurs, and what amount is recorded as obligated. Moreover, a direct comparison between the three services for the fiscal years 1972 through 1976 shows no major differences in obligation rates.

This discussion of the obligational process and constraints shows that there is much more to obligating funds than just awarding a contract. In many cases the amount recorded as obligated is only an estimate, and historically, estimates have been optimistic (in this case, low). In other cases the obligation is made only after a period of time (requirements contract) or after an event (award fee, escalation). To avoid an eventual violation, the funds must be available somewhere in the system; that is, funds are appropriated, but not recorded as obligated against a specific contract. Any simple solution, such as recording the maximum Government liability would reduce the number of contracts the Government could fund, and also would result in excess funds at the end of the contract, when many contractors did not receive the maximum. Also, by obligating only the target amount, various levels (DA, DARCOM) can exert greater control on lower levels than if some higher amount were obligated.

5. Reasons for Underobligations. The Army Procurement Appropriation Management Accounting and Reporting System (APARS) system generates a series of reports with special interest to this study; namely, the so-called 1369 reports (CSGLD-1369 (R1)). These reports forecast how and when each procurement line item will be procured. The schedules also provide a means for evaluating monthly progress in comparison to this forecast. All procurement line items are reported. The schedules list Budget/Program Line Items individually if the value of the program (current year and/or prior year unobligated carryover) is one million dollars or more. Line items valued at less than one million dollars are consolidated as a single entry under the applicable Budget Project. A summary report by Budget Project and TOTAL Procurement is also produced.

In addition to showing the amounts forecasted to be obligated, the 1369 reports show which items are not expected to be obligated. For these items, called "not forecast," a reason code is given, explaining why the funds will not be obligated. From these codes higher headquarters can determine the status of the items and the funds.

AR 37-210 and DARCOM-R-715-4 contain 48 reasons for not forecasting award, broken down into four main areas: (1) Retained for subsequent FY procurement, 17 reasons; (2) Reserves to support contracts and production, 15 reasons; (3) Reprogramming in process, 7 reasons; and (4) Cannot forecast, 9 reasons.

The new listing does more than just rearrange the sequence of reason codes; some old codes were dropped, some new codes were added, and some old general codes were broken down into specific circumstances. For example, code 08 used to be "Other procurement problems such as change in method of procurement, decision to extend bid opening, extended negotiations, delay in D&F or audit approvals, inadequate contractor cost data, unfavorable pre-award survey and so forth." This general code has been replaced by the following:

- 07 Change in method of procurement
- 08 Bid opening delayed
- 09 Negotiations extended, time will not permit award this FY
- 10 Inadequate contractor cost data
- 14 Unfavorable pre-award survey
- 19 Other unresolved problems**

Code 09 used to be "Item released too late to award in current fiscal year". This code has been replaced by code 67, Obligation authority or orders received too late to award.

Of all the reason codes authorized for use, the most significant reasons for program carryover appear to be in nine areas as follows:

1. Reserves to cover contingent liabilities.
2. Direct Army programs released too late to award in the fiscal year.

3. Reserves for production engineering support and engineering changes (full funding).

4. Held to combine with the next fiscal year buy to make an economic order quantity or achieve cost savings.

5. Item having design, development or test difficulties which preclude an award this fiscal year.

6. Procurement problems.

7. Negotiations extended due to contractor proposal in excess of the Government independent cost estimate.

8. Miscellaneous reasons.

9. Unapplied program reserve.

The implementation of the new reason codes on the 1369 reports is highly significant for several reasons. By more clearly reflecting the types of problems in the award process, the new codes enable managers in the field and at DARCOM to make corrections to the process. The greater visibility will also help DARCOM recycle excess funds, and answer questions on program status from HQ DA and others.

One shortcoming of the 1369 report, noted by the Ernst and Ernst study, is that the time period displayed is just the remainder of the current fiscal year, a constantly shrinking period. However, the intensive management of procurement funds at the end of the fiscal year prevents this from being a severe problem.

This chapter has described the release and obligation process as it currently exists for Army procurement funds. Some of the constraints were

seen to be legal ones, since the obligating document is a contract. Other constraints were seen to be financial ones, resulting from the need for accountability for public funds. Actual data on obligations was analyzed, leading to the conclusion that slow releases are not a major cause of under-obligations. The last area covered was the Management Information System (MIS) which allows the Army to accomplish and control the acquisition of procurement-funded items. While Chapter II describes the system as it exists "on paper", Chapter III, Functional Perspectives, describes the system as it appears to those who operate within it.

CHAPTER III

FUNCTIONAL PERSPECTIVES

A. INTRODUCTION.

The purpose of this chapter is to examine the obligation process from the perspective of the individual operating within the system. During the data collection phase of this effort, interviews were conducted with many individuals located in various functional positions; e.g., comptroller, material management, project manager, procurement specialist. The individuals interviewed represented all levels in the organizational hierarchy: Department of Defense (DOD), Headquarters, Department of Army (HQ DA), US Army Materiel Development and Readiness Command (DARCOM) and four of the major subordinate commands (MSC) of DARCOM. Navy and Air Force offices were also contacted. While many personnel are so specialized in their field or position that they can lose sight of the entire obligation process, these individuals can sometimes perceive stumbling blocks or hurdles not only within their immediate position, but beyond into other elements.

During the course of the interviews, the individual perceptions or functional perspectives were recorded and categorized. In the case of a statement made in derogation to some other element, that statement would be analyzed and explained if possible by the affected element. In cases where statements were made of general nature without support of data in the immediate area, outside sources such as experts or literature were consulted for clarification.

Other functional perspectives exist as "conventional wisdom" in the minds of many people; they are not susceptible to documentation but are so widespread as beliefs as to be worthy of discussion.

In addition to personal observations, specific examples are included, where obtainable, in order to demonstrate the impact of problems and occurrences cited by personnel of those functional areas.

B. FINANCE AND ACCOUNTING OFFICES.

The most frequently mentioned problem area from the viewpoint of personnel in finance and accounting offices, was the Commodity Command Standard System (CCSS). A general consensus was that the sheer volume of output coupled with the frequent misrouting of output from the Management Information System (MIS) is a major source of delay in the obligation process. Many people complained about "bugs" in the CCSS system. However, the same people stated that the improvements in processing time and the mechanized system are an on-going effort.

Another frequent comment was that field personnel are constantly being interrupted by excessive requests for status reports from higher headquarters, especially near the end of the fiscal year. These people complain that often a special manual report is asked for when a routine MIS generated report will automatically provide the same type of data within a very short time. There appears to be a great deal of duplication and unnecessary manual effort as far as they are concerned. In addition, they believe the time allowed for response is too short.

Another common observation was that orders are sometimes pulled back at the end of the year. Also, DARCOM withdraws funds that have already been given to the MSC's. Finance and Accounting Offices expressed the belief that such attempts are based on DARCOM's fear of underobligation, and that the fear is based in turn on a six-week old status report.

Other beliefs expressed were that much of the problems are centered in the contracting process. Any number of occurrences cause delays in the ultimate award of a contract; consequently, the funds do not get obligated in a timely manner. In addition to delays in the award process, it is often impossible to know the exact amount required until the very end of a contract. At that time one may require additional funds, or one may have funds in excess of requirements.

When a need for any initial release or a later reprogramming of funds arises, operating personnel have experienced time delays in getting DA or DARCOM releases or reprogramming approvals.

In direct contrast to the above mentioned perspectives from field offices, representatives from the Comptroller Office at Department of the Army level believe the obligation problem is caused by inadequate planning rather than slow release of funds, reprogramming, or management problems in the data system. Further, when money is held back, it is because of a definite reason relating to the program in question.

C. MANAGEMENT INFORMATION SYSTEMS OFFICES.

In view of the numerous comments received pertaining to MIS offices, these offices were visited to obtain comments relative to MIS involvement in the obligation process.

Several of the offices contacted appear to have no problems with workload; however, personnel in several of the other offices stated that the volume of paperwork in the biweekly cycle is tremendous. They agreed that distribution of the output alone is a great problem. The workload is so heavy in some offices that keypunching of data is contracted out, while in other offices it can be accommodated in house.

Some personnel said that various reports should be more accurate; e.g., the 1369 report relating to Contract Awards and Scheduling. However, MIS attention was also focused on the generation of a Procurement Work Directive (PWD). PWD generation has apparently been given the highest priority in the various MIS offices. PWD's containing errors must be reprocessed and this adds to the time spent prior to obligation. Training in the area of PWD's is an ongoing effort and the rewards are evidenced by the fact that the average time required for correction of PWD's with errors has been reduced at one command from 29 days to 9 days. Unfortunately, personnel estimated that some Project and Item Managers have average rejection rates of PWD's around 50% with some rejecting consistently and others rarely rejecting at all. At one command personnel overload the ADP system by not adequately proofreading their input to the PWD process. Instead they rely on the computer editing routines to check for errors. Since multiple submissions are required for each such PWD the physical volume of output becomes very large. With the ongoing training and the biweekly processing cycle, the turn around time for rejects has been improving; however, the volume of paperwork remains high.

Another area mentioned as a possible contributing factor was the decommitment process, which is not systematic. At present, the requiring activity must initiate a manual amendment to the PWD in order to decommit the funds and make them available for recycling. There is presently no incentive for the requiring activity to take the time to manually process such a change; in fact, it was suggested that the requiring activities would rather not decommit the funds, but instead hold them in committed status as a type of reserve for options or other contingencies.

D. MATERIAL MANAGEMENT OFFICES.

Personnel of material management offices believe most of the delays in the obligation process can be attributed to procurement related problems. In the procurement area, the biggest problems seem to be caused by technical data packages. A deficiency in a technical data package leads to excessive amounts of procurement lead time required to explain technical misunderstandings, correct specifications which are incorporated into Invitations for Bids and Requests for Proposals and generally to process challenges to specifications. There is a large amount of time spent on the processing of Engineering Change Order Proposals. The problems appear to be the greatest when an item is progressing from sole source into competition. Other related problems are encountered in the testing of end items. Many times funds are held for later testing of the end item after it has gone through the entire procurement process. If the testing results in serious problems, the program can be set back, and, of course, the anticipated funds do not get obligated as planned. General changes in requirements or Congressional delays in programs can have the same effect on the obligation process. Various material managers stated that it is

impossible to obligate 100% of the funds because of funds being held back for price escalation. In addition, there is a lack of the use of planning PWD's for Army stock funds. There is also a "spinoff effect" on direct Army procurements connected with Foreign Military Sales (FMS) cases. For example, if an FMS request causes an increase in quantity, the bid process (for both Army and the FMS portion) may have to start over.

Other problems relate to workload and timing. The volume of MIS data and keypunching were mentioned often along with the impression that status of funds reports from Finance and Accounting could be more timely.

An example of the spinoff effect on direct Army procurements by FMS cases can be found in the FY 76 procurement of the improved HAWK Missile system. Early in FY 76 solicitations were issued for all US and currently approved FMS missile and ground support equipment. Prior to negotiation, a decision was made to delay negotiation in anticipation of a price break that would result from the addition of additional FMS cases. Problems were encountered in getting Congressional approval on the large FMS case, and the delay was so extensive that a letter contract was required to meet the required delivery schedule and to prevent production interruptions. The letter contract could not be definitized until 6 July 1976.

Another example can be found in the case of the CH-47 Helicopter. Technical problems were encountered during testing, and there was inability to definitize hardware requirements. Part of the delay was due to work volume in the contracting office responsible for various component parts. There was also a lag in recording the obligation from award date of 29 June 1976 until 3 August 1976. In this particular case the obligation forecast

was overly optimistic, there were hardware problems, manpower shortages, and obligation reporting lag which all contributed to underobligation.

E. PROJECT MANAGER OFFICES.

From the perspective of the personnel in the project managers office, the largest problem seems to be in the requirement for forecasting both requirements and money years in advance of the date actual contracts will be awarded. This forecasting requirement, coupled with technological changes and progress cause many difficulties. In addition to the forecasting problems, one office said that the entire budget system is success oriented, and assumes that nothing will go wrong and no contingencies will happen; yet, something invariably goes wrong and funds must be reprogrammed or made available. This event can then affect other programs. When funds are taken away, requirements, or quantities are cut, and various changes have to be made in order to meet requirements elsewhere. In fact, there were comments to the effect that the Project Manager spends much of his time considering how he can react if his program is cut or changed somehow.

These offices also found fault with their own technical data packages in that they are not always developed in a timely manner. Some problems are also caused by delays in testing, or testing which reveals problems in the item. The result is a delay in the acquisition of the end item and a delay in the obligation of funds.

Fault was found in the area of the computerized MIS system. There were comments that the automated policies were implemented prematurely, without detailed operating procedures. There are many keypunching errors and

misrouting of MIS output. Many people were said to use the computer to avoid proofreading by feeding deficiency data into the computer and letting the computer tell where the errors are. Excessive checks and balances were perceived by many offices involved in the generation of the PWD, and a failure to utilize planning PWD's was often mentioned. A comment was made that the system should be "front end loaded" meaning that the first edit determines that funds are in the system (in place of the current manual certification of funds). Some personnel are of the opinion that the main problems are procurement administrative lead time (PALT), mostly in the negotiation phase.

Comments received from people in DCSRDA (HQ DA) agree in part with some of the comments mentioned in the project manager offices. In DCSRDA, there is the belief that problems lie in the areas of inadequate forecasting for procurement execution, and deobligations which cannot be planned for. Allegedly, DARCOM cannot make sufficient progress until the funds are released; yet, one reason for not releasing the funds is alleged to be lack of sufficient progress in the program. Also, the MSC will not proceed until they have the funds. The forecast of obligations was said to be unrealistic, based on past experience.

An example of underobligation can be found in the case of the M732 Proximity Fuze. This was a new development item in FY 76 and was not type classified until the fiscal year was half over. The MSC had received the funds on 5 Dec 75 but could not release them to the PM until the item was type classified. The program was not funded until Feb 76. In addition, a

complete TDP had to be developed between type classification and issuance of the RFP. This effort was not completed until 16 Jul 76 and the balance of the procurement cycle up to full obligation continued until 14 Mar 77.

This example displays the effects of problems in overall planning, type classification, TDP preparation and procurement cycle delay.

F. PROCUREMENT OFFICES.

Personnel of the various procurement offices cited many causes for delays in the award of contracts and the failure to obligate the desired percentages of funds. The only remarks which several offices made in common pertained to unrealistic delivery schedule requirements imposed on them and manpower shortages in the face of increasing workload. Increased workload in this case includes such things as increased reporting requirements, and increased number of contracts being awarded.

Various comments were made concerning the PWD. Complaints were made stating that PWD's are received late or require correction, time for which is not in the original plan. The use of multiple PWD's on one contract modification causes additional bookkeeping effort for the Contracting Office. A big problem is in the amount of bookkeeping required by the use of increasing numbers of PWD's per contract action.

The misrouting of MIS output was cited as a problem in the procurement offices. This is in part due to the large amount of output, and the possibility of errors on the PWD document,

Personnel stated that forecasting is a problem in many cases due to the long lead time for the items; e.g., the lead time for an M60 tank is 17 months and many things can change within that 17 month period. In addition, the estimates received by the procurement office are not always accurate; e.g., a per unit price for a small quantity production run may be based on an historical price based on a much larger production run. When an estimate is unrealistically low, bids or proposals are received in such dollar amounts that the need for additional funds causes delay in the procurement cycle, and the delay of award causes delay in the obligation of the funds. High estimates, on the other hand, result in award at prices less than expected causing underobligation.

Some personnel are of the opinion that the large number of line items managed causes problems. In addition, pressure is put on the MSC with regard to low cost items; the goal is to limit the use of sole source procurement and increase the share of awards to small business concerns. Both of these goals require a longer period of time to award and consequently delay the obligation of funds.

Problems are encountered in the processing of contracts with indefinite fund requirements. Contracts of the reimbursable variety require time expenditure for the resolution of a final overhead rate; therefore, a period of time elapses before the ability to deobligate excess funds presents itself. The contingency for economic price adjustment is committed but not obligated at time of award, and in incentive type contracts the target price rather

than the ceiling price is obligated. These requirements are imposed by AR 37-21. In these cases, the final obligated amount is not known for a period of time. One person cited a case where funds being held for economic price adjustment were decommitted by accident, and at the very same time the individual had been unsuccessfully attempting for a number of months to decommit funds being held for economic price adjustment on another contract.

Procurement people also stated that they are interrupted by numerous requests for status with unrealistic deadlines for response. Many times the data requested is the same as the automated data except that the cutoff dates do not coincide; therefore, a manual response must be made that very nearly parallels available automated data.

The procurement of 5KW Generator Sets provides an example where a delay of 2 to 3 months was encountered in getting an updated TDP from the production contractor. This caused delay in initiating the PWD which was carried forward to delay in the date of award. In addition to the above, the unit price was estimated to be \$6,254 based on the prior year contract unit price for a comparable quantity plus expected escalation. The actual contract unit price was \$4,020 which was even lower than the prior year. The combination of delay and reduced price resulted in an obligation of only 3% of program in this example.

Chapter III examined the obligation process as seen from the operating offices. Management Information System problems were found, including the implementation of new systems, large amounts of output, and quality of data.

Organizational turbulence is still a problem, including reorganizations, reductions-in-force and implementation of new procedures. Improved recycling of funds was identified as another area for improvement. Acquisition-related delays (for example, waiting for economic order quantities, correcting deficient Technical Data Packages, resolving protests) take up a large amount of time. While some improvement is still possible in the contracting process, some parts (for example, waiting for contractors' responses) will continue to require a large amount of time. The next chapter will present conclusions and recommendations.

CHAPTER IV

CONCLUSIONS AND RECOMMENDATIONS

There is evidence that the Army has succeeded in making significant improvements to a lengthy and complex process. Responsibilities have been clarified at HQ DA and DARCOM between comptroller offices and requiring offices. Budget execution capabilities have been strengthened. New Management Information Systems (MIS) have been implemented (although this has resulted in some valid complaints as described below), and new information in the form of new reports is beginning to become available. This will aid in strengthening the budget execution process. More evidence of improvement is the fact that the trend for the percent of procurement funds obligated by the end of the first year is upward, after declining for several years.

While there has been significant progress in reducing underobligations, there are still many areas for improvement. Chapter IV addresses the areas of Management Information Systems, recycling of funds, forecasting of obligations, clarification of terminology, changes to regulations, and finally a few areas where further improvement will be difficult.

The biggest opportunity for improvement is in the area of Management Information Systems. The Army Procurement Appropriation-Management Accounting and Reporting System (APARS) needs further standardization of report formats among DA, DARCOM and the Major Subordinate Commands. The Ernst and Ernst study of July 1977, discussed in Chapter II of this report, offers many specific recommendations for APARS including a more comprehensive system concept, several new reports, and redesign of the data bases. DARCOM should

support the efforts of the APARS proponent (the Comptroller of the Army) to improve APARS. Another system, the Commodity Command Standard System (CCSS) suffers from faulty input data at some Major Subordinate Commands (MSC's). The rejected Procurement Work Directives (PWD's) contribute to the already high volume of output. The MSC's must continue to emphasize the importance of accuracy in the submitted PWD's and in the CCSS data base.

The recycling of excess procurement funds for use by other programs is both an organizational problem and an information problem. The organizational problem occurs because requiring offices are always faced with the possibility of needing more funds, and are therefore reluctant to turn back funds to higher headquarters. Requiring offices are also reluctant to agree to a delay in schedule because (1) the funds may in turn be further delayed, and (2) the original schedule still reflects a valid requirement. As a result, funds are tied up in the system, and unrealistic obligation forecasts remain. Because of the organizational constraints in requiring offices, a call for more realistic forecasting by itself will have little practical effect. One remedy -- independent check of schedule forecasts -- was considered and rejected by the study team. An independent check would not only be costly, it would also further delay the acquisition process. The competition between program offices for scarce funds insures that the organizational part of the recycling problem will continue. The best opportunity for better recycling lies in improved APARS-type information to higher headquarters and in better forecasting of the obligational schedule. Improved MIS's have been discussed, and forecasting is discussed next.

The forecasts for obligation of procurement funds are overoptimistic. This is evidenced by the fact that the individual forecasts of obligations, prepared by requiring offices and aggregated at higher levels, are usually greater than actual obligations. The errors in forecasting are a greater problem to the Army than the underobligation itself, due to the loss of credibility, as discussed in Chapter II. While requiring offices should continue to have primary responsibility for making initial and revised forecasts of obligations, contracting offices should prepare and distribute planning guidance showing recent data for actual times (as opposed to goals) for all steps, including preparation of Technical Data Packages (TDP's), correction of TDP's, preparation of Procurement Work Directives (PWD's), commitment of funds, waiting for contractors' responses, and other steps. This should minimize overoptimistic planning within the Major Subordinate Commands. Further realism can be achieved at DARCOM, and Department of the Army by factoring the aggregated forecast downward, based on historical experience, probably by the Comptroller of the Army. It is not necessary that the Army's forecast to DOD be based strictly on an aggregation of lower level forecasts. While this would not change the Army's achievement in obligating funds, the more realistic estimate would improve the Army's budget credibility.

The term "obligation rate" is not widely or uniformly understood, even in budget offices. The confusion centers on whether the amount actually obligated is to be compared to (1) the amount programmed or (2) the amount the command plans to obligate. To improve communication a standard definition should be established. It is suggested that the term "obligation rate" be

defined as the amount obligated divided by the amount programmed. A standard performance indicator for obligations should also be established. While the definition of this indicator should be standard, the actual numerical goal for any specific agency should be negotiated between various organizational levels. An indicator which measures obligational achievement is

$$\text{Indicator} = \frac{O + E}{P - D}$$

where,

O = Obligations of first year funds

E = Funds committed for Economic Price Adjustment clauses on contracts which have been awarded

P = Funds programmed and received by the agency's comptroller

D = Decommited funds

The indicator suggested gives credit for funds committed for Economic Price Adjustment if the contract has been awarded. It also encourages recycling of excess funds by excluding decommitted funds from the denominator.

Army Regulation 37-21, Financial Administration, Establishing and Recording of Commitments and Obligations, May 1977, should be changed to allow recording as an obligation of those funds committed for Economic Price Adjustment (EPA) clauses on contracts which have been awarded. Counting EPA funds as obligated is entirely consistent with the legal definition of an obligation, as described in Chapter II, and would more accurately reflect the status of budget execution. It is true that the exact amount for EPA is not known

at the time of contract award, but AR 37-21 has already established the concepts of "target" and "estimated" amounts for obligations. The following language is suggested as a change to AR 37-21. After Chapter 2, Section II, paragraph 2-8, part j(2), (page 2-6) insert as part "h" the words: "In contracts having either a target price or an estimated price, and also having escalation provisions, this target or estimated price will include funds for this escalation, in an estimated amount.

There are many factors which contribute to delays in obligations over which the Army has little control. The length and complexity of the acquisition process, including the budget execution system, is one such factor. Those checks and balances which insure integrity and accuracy in the system are necessary, but should be minimized. Other checks and balances are actually part of an internal decision-making process in which different agencies compete for limited resources. Time must be allowed for this process. Another factor contributing to underobligations is organizational turbulence, including recent reorganizations, reductions in force and implementation of new procedures. The effects of these changes should diminish over time. The Army should continue to explain the effects of these uncontrollable factors to OSD and to Congress, and at the same time make the changes suggested above.

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